ENGINEERING NEWS-RECORD

A WEEKLY JOURNAL OF CIVIL ENGINEERING
AND CONSTRUCTION PRACTICE

Volume 118

January to June, 1937

McGRAW-HILL PUBLISHING COMPANY, INC.
330 W. 42d Street
NEW YORK CITY

INDEX TO ENGINEERING NEWS-RECORD

VOLUME 118—January to June, 1937

Jan. 7 ..... 1- 40
Jan. 14 ..... 41- 76
Jan. 21 77-112
Jan. 28 113-150
Feb. 4 151-210
Feb. 11 211-248
Feb. 18 249-284
Feb. 25 285-320
Mar. 4 321-358
Mar. 11 359-394
Mar. 18 395-430
Mar. 25 431-466
April 1 467-504
April 8 505-540
April 15 541-576
April 22 577-612
April 29 613-654
May 6 655-692
May 13 693-728
May 20 728-764
May 27 765-800
June 3 801-850
June 10 851-888
June 17 889-926
June 24 927-966

A

AERONAUTICS

Airports:
German airport building.....n*965
Report on airports by American Municipal Association 216
Airships:
Hindenburg burns at Lakehurst.n723, e718
Hangars:
French all-steel hangars have suspended plate roofs.....*49
Progress in airplane design.....e644
Air conditioning:
Central air cooling plant installed in Washington n571
Wichita, Kan., demand for cooling water exceeds underground supply... 746
Aluminum Company charged with monopoly n646
Aluminum Co. suit halted by court..... n82
American Association of Engineers:
Illinois assembly works for licensing.... 419
Terminology for engineers to be discussed 89
American Concrete Expansion Joint Co.:
Connection with company denied. V. L. Glover .....l 677
F. T. Sheets denies all charges..... 601
American Concrete Institute:
Building Code referred to at convention. R. R. Zipprodt .....l 490
New York City meeting.....340, e346
American Engineering Council:
Washington meeting n106
American Institute of Consulting Engineers:
Officers elected n242
American Institute of Steel Construction:
Sixth International Congress for Steel Development cancelled n537
American Public Works Assn.:
Chicago Metropolitan Section meets at Waukegan n682
American Railway Engineering Assn.:
Chicago meeting 486
Chicago meeting and exhibit of National Railway Appliances Assn.....n*460
American Railway Engineering Assn.:
Time to reorganize.....e457
American Road Builders Association:
Convention to be in Cleveland.....n890
New Orleans annual convention...n68, 94
W. C. Slee joins staff.....n573
Washington meeting n841
American Society of Civil Engineers:
Elections to honorary membership....n*146
Louis C. Hill is elected president.....n*108
New York meeting..... 133
San Antonio meeting.....n647, 674
American Water Works Assn.:
Awards announced for June meeting...n316
Buffalo convention.....n*890, e898, 949
Convention to review flood lessons.....n422
Illinois section meets at Springfield..... 745
New Jersey section meeting hears reorganization plan n388, e384
Pacific Northwest section meeting....n887
Rocky Mountain section to form sewerage works group.....n109

AQUEDUCTS

Colorado River:
Canal lining completed..... 746
Capitalized cost of pumping..... 120
Concreting halted in desert section...n963
Contractors on intake and Gene Wash pumping plants halt work.....n685
Economic water conduit size. Julian Hinds *113, e140
Economic sizes of pressure conduits. Julian Hinds *443, e492
Gantry places heavy pipe.....*514
Gene Wash and Copper Basin dams (unit prices) *763
Invert concrete ponded by portable dam *923
Invert slip form for conduit sections.*564
Progress 182
Pump designs changed by laboratory tests. J. M. Gaylord..... *45
San Diego may import water through the All-American canal..... 908
San Jacinto tunnel progress.....*302
San Jacinto tunnel workers given wage increases.....n462
Welding practices for steel pipe.....*747
Delaware aqueduct:
Construction operations started..... *41
Shafts for aqueduct (unit prices).... 540
Imperial Dam—flat arched conduit uses collapsible forms *520
Arches:
Glued laminated arches checked for stresses. W. A. Oliver..... *82
Volume of intersecting arches. Joseph Seligman .....l 139
Asphalt Institute:
Office opened in Dallas, Tex..... 779
Associated General Contractors:
San Antonio, Tex., convention..... 306
Washington meeting.....n684
Association of Asphalt Paving Technologists: New Orleans meeting..... 231
Association of Highway Officials of the North Atlantic States:
New York City meeting.....n350

AWARDS

Franklin Institute awards medals to two civil engineers.....n885
Fritz medal awarded to Arthur N. Talbot n*147
J. L. Savage receives Gold Medal from Colorado Engineering Council.....n*350
Washington award presented to F. G. Cottrell n106

B

Beaches, see Shore protection

BEAMS

Beam deflections. J. D. Gedo.....l 529
Cooper's formula used in relation of span to live load stresses. R. E. McFee *716
Deflections of beams by moment-area. F. P. Witmer .....l 677
Depth of beams and trusses. S. Sergev.l 529
Determining beam deflections. F. B. Farquharson l*753
A. W. Fischer..l 274

BLASTING

Old bridge timber trusses dynamited without damage to new concrete span 271
Oregon City road widened by difficult rock blasting job. E. A. Collier.....*301
Pacific Highway widening necessitates blasting of concrete wall.....*769
Blueprint paper manufacturers charged with unfair practices.....n534

BOOK REVIEWS

Analysis of engineering structures. Pippard & Baker..... 453
Bitumen and petroleum in antiquity. R. J. Forbes..... 453
Borrowing for highways. Edna Trull.. 788
Brown flow meter engineering handbook comp. by Gess & Feldmark..... 308
Colossus of roads—life of John Loudon McAdam. Roy Devereux..... 599
Decade of bridges. W. J. Watson..... 960
Deep diving and submarine operations. R. H. Davis..... 599
Elementary surveying. W. H. Rayner. 960
Elements of railroad engineering. W. G. Raymond, rev. by Riggs and Sadler.. 788
End of track—reminiscences of James H. Kyner 599
Gasoline tax in the U. S. F. G. Crawford 599
Hydraulics. C. W. Harris..... 788
Manual for railway engineering..... 453
Mechanics of turbulent flow. B. A. Bakhmeteff 308
Municipal bonds—a century of experience. A. M. Hillhouse..... 308
Municipal year book 1937.....622, 669
New York—The canal state. F. P. Kimball 960
Pioneer southern railroad. T. D. Clark 138
Public finance. A. G. Buehler..... 308
Railway maintenance problems. H. A. Hill 308
Real property inventory of the Cleveland Metropolitan District and Cuyahoga County. H. N. Green..... 961
Roadsides, the front yard of the nation. J. M. Bennett..... 138
Sewerage and sewage treatment. W. A. Hardenbergh 308
Standard practice in municipal accounting and financial procedure..... 622
Statically indeterminate stresses. Parcel and Maney 138
Supervision of construction operations. W. W. Beach..... 788
Theory of continuous structures and arches. C. M. Spofford..... 960
Theory of modern steel structures v. 1 determinate. L. E. Grinter..... 453
Theory of modern steel structures v. 2 indeterminate. L. E. Grinter..... 960
Water purification control. E. S. Hopkins 453
Waterway engineering. Otto Franzius 453
Wind-pressure on buildings. J. O. V. Irminger 599

BONDS

Chicago water bonds bring high price..n759
High surety bonds commissions. J. C. Tyler .....l 714
Thousand Island Bridge Authority.....n651
Triborough Bridge Authority issues bonds n651
Bowie, William, retires from Coast and Geodetic Survey n*70
Bricks and brickwork:
N.P.B.A. discusses paving practices... 234
Skid resisting surfaces for roads..... 870

BRIDGE ACCIDENTS AND FAILURES

Boston overpass bridge repair not to be paid by federal or state government.n570
California timber bridge failure caused by rot n*894, e898
Montgomery, Pa.:
Bridge damaged by flood collapses during reconstruction n933
Oregon bridge collapses.....n*721
San Francisco-Golden Gate bridge:
Accident investigations continue.....n349
Scaffold accident—localized stress in brittle material. T. J. Dolan.....l 714
Scaffold failure reviewed.....*377
Scaffold tested for defect.....*590
Texas bridge falls under load as equipment crosses n*605
Winnipeg, Man., Canada, bascule counterweight falls n646

BRIDGE CONSTRUCTION

Chicago Outer Drive bridge—sealing off water in pier sinking..... 716
Chicago Torrence Ave. bridge—erecting 56-ton sheaves *774
Concrete bridge costs. George Runcieman .....l 103
Frazer bridge constructed with self-supporting reinforcing *270
Kenosha, Wisc. Lincoln Park Bridge features by rigid span of 146 ft. H. E. Bothe *127
New York City—Marine Park, Jamaica Bay bridge lift span floated into position n*109, e104
Paris, France—Iena bridge widened....*522
Perade, Quebec, six-span continuous girder welded bridge. D. B. Armstrong *52
Progress of bridge engineering in 1936. Shortridge Hardesty 177
San Antonio, Tex. bridge features piles with drilled, reamed holes. J. W. Beretta *217
Trinity River, Calif. truss bridge erected by C.C.C. workmen.....*947
Welded girders on Livingston Manor (N. Y.) Bridge. O. M. Bloch.....*741
Wellpoints used in foundations for small bridges. La Motte Grover.....*877

BRIDGE DESIGN

A.I.S.C. design competition.....n279
American Institute of Steel Construction to award beautiful bridge prizes.n759
Chicago Outer Drive bascule bridge described *583; e602
Chicago's Outer Drive is supported on three column steel bents and designed for future lower deck.....*671
McDermott, Ohio, bridge abutments in which wings serve as counterforts. A. E. Wall *510
Port Angeles, Wash. measurements of slip in ring-connected timber joints..*717
Progress of bridge engineering in 1936. Shortridge Hardesty 177
Rio Choluteca, Honduras, bridge with a two span suspension structure. McCullough & Archibald.....*87
Rio Tamasulapa, Guatemala, suspension bridge for Pan-American highway has self-anchored eyebar cable. McCullough & Archibald.....*912
Riveted indeterminate bridges safer. Louis Balog .....l 859
San Francisco-Oakland Bay bridge traffic and approach problems. Purcell, Andrew & Woodruff.....*331
Seattle, Wash. Schmitz Park rigid-frame bridge. J. A. Dunford.....*939
Skew roadway on a right angle frame for New Jersey R.R. crossing. M. Hirschthal *55
Vierendeel truss bridges. A. Vierendeel l*345
Bridge floors:
Portland, Ore. Burnside Bridge's thin concrete floor wears little in 10 years. G. W. Buck.....*710
Skid resisting surfaces..... 870
Bridge lighting:
Drawbridge marker *466
San Francisco Bay Bridge lighting consists of sodium vapor luminaires. Purcell, Andrew & Woodruff....*467; e492
Bridge traffic:
San Francisco-Oakland Bay Bridge traffic and approach problems. Purcell, Andrew & Woodruff.....*331

BRIDGES

Arizona:
Timber highway bridges (unit prices). 800

* Illustrated; a, abstracts; e, editorials; l, letter; n, news

Baton Rouge:
Estimated costs for bridge.....n840
Belmar-Avon (N. J.) bridges:
Cofferdamming difficulties in narrow tideway. E. R. Albertson.....*729
California:
Highway bridge (unit prices)..... 800
250 inadequate highway bridges found.n685
Chesapeake & Ohio vehicle bridge:
Kentucky to purchase bridge.....n725
Chicago:
Lake-front boulevard link. H. E. Young.....*546
Outer Drive bascule bridge.....*583; e602
Outer Drive bridge progress..... 189
Outer Drive bridge—sealing off water in pier sinking..... 716
Outer Drive is supported on three column steel bents and designed for future lower deck.....*671
Progress of bridges.....189
Torrence Ave. bridge over Calumet River—erecting 56 ton sheaves.....*774
Dix River, Kentucky:
Unusual appearance for highway bridge. E. D. Smith.....*339
Estacada, Ore.:
Dynamiting old timber trusses adjacent to new concrete span.....*271
Frankfort, Ky.:
Kentucky River bridge (unit prices). 539
Frazer River bridge:
Self-supporting reinforcing in concrete girders *270
Fredericton, N. B.:
Bids called for new bridge.....n533
Glendale, Calif.:
Vierendeel bridge costs..... 601
Jackson, Miss.:
Pearl River bridge to be constructed.n857
Kansas:
Wellpoints used in foundations for small bridges. La Motte Grover....*877
Kenosha, Wisc.:
Lincoln Park concrete bridge with rigid span of 146 ft. H. W. Bothe.*127
Kincardine-Forth, Scotland:
Drawbridge closing controlled by photo-electric cells 923
Fabric-lined concrete forms. J. G. Brown 1923
Livingston Manor, N. Y.:
Welded bridge girders built on 70-ft. span. O. M. Bloch.....*741
London, England:
Chelsea bridge takes shape.....n*315
Waterloo bridge details announced.. 400
Marine Parkway bridge:
Last span placed.....n*856
Maryland:
Program for bridges set up.....n604
McDermott, Ohio:
Bridge abutments in which wings serve as counterforts. A. E. Wall..*510
Menai Straits Bridge, Wales:
Suspension bridge changes.....n*422
Merrimac River, N. H.:
Highway bridge (unit prices)..... June 24 adv. 28
Middletown, Conn.:
Connecticut River bridge progress.... 189
Neches River, Port Arthur, Tex.:
Progress 189
Neglected bridges.....e718
New Jersey R.R. crossing:
Skew roadway on a right angle frame. M. Hirschthal *55
New York City:
Henry Hudson bridge to have upper deck n461
Marine Park Bridge:
Lift span floated into position..... n*109; e104
Near completion n842
Progress 189
Sheetpile cutting record for underwater work. Ellsberg & Kandel..*373
Queensboro bridge accident not on new pavement n649
Triborough Bridge Authority:
Powers increased n241
Triborough bridge opened in July.... 166
George Washington—New route to bridge n*760
Whitestone bridge foundation contract let n927
Whitestone bridge over East River.n*241
Williamsburg bridge given two more lanes n36
New York, New Haven & Hartford R.R.:
Replaces burnt bridge in four days... 795
Nyack:
Bridge report is unfavorable.....n69; e66
Pan-American Highway:
Contracts awarded for three bridges in Nicaragua n497
Paris, France:
Iena Bridge widened.....*522
Pattulo bridge, B. C.:
Sodium lights to be installed.....n761
Perade, Quebec:
Six-span continuous girder welded bridge. D. B. Armstrong..... *52
Philadelphia:
Arbitrator in bridge suit upheld by Supreme Court n795
Point of Rocks, Md.:
Bridge to be replaced.....n895
Port Angeles, Wash.:
Measurements of slip in ring-connected timber joints.....*717
Port Richmond-Tower Hill viaduct:
Viaduct takes tracks off streets.....n*352
Portland, Ore.:
Burnside bridge's thin concrete floor shows little wear. G. W. Buck...*710
Puget Is., Wash.:
Bridge to be constructed.....n895
Rio Choluteca, Honduras:
Two span suspension structure. McCullough & Archibald..... *87
Rio Tamasulapa, Guatemala:
Suspension bridge for Pan-American highway has self anchored eyebar cable. McCullough & Archibald...*912
Rotterdam, Holland:
Highway bridge of alloy steel.....n*651
St. Charles, Mo.:
Wabash R.R. bridge dynamited.....*862
St. John River, Canada:
Railway bridge authorized.....n243
St. Johns River, Fla.:
P.W.A. makes grant for bridge.....n494
San Antonio, Tex.:
Foundation piles are cast with drilled holes. J. W. Beretta.....*217
San Francisco:
Metropolitan Bridge suit dismissed..n390
San Francisco-Golden Gate:
Accident investigations continue.....n349
Dedication of bridge.....n682
Floor form scaffold crashes net, killing ten men.....n*313
Opening to be celebrated by "Fiesta" .n793
Progress 188
Roebling's sound film of bridge.....n*854
Scaffold accident investigation.....e384
Scaffold failure reviewed.....*377
Scaffold tested for defect.....*590
Sodium vapor luminaires for lighting.n*797
San Francisco-Oakland Bay Bridge:
Bridge rapid transit system. Purcell, Andrew & Woodruff.....*770
Progress 188
Railroad facilities (unit prices)..... 539
Sodium vapor lighting. Purcell, Andrew & Woodruff.....*467; e492
Toll reduction to be made..... n70
Traffic on bridge for first six months 942
Traffic and approach problems. Purcell, Andrew & Woodruff.....*331
Seattle, Wash.:
Schmitz Park rigid-frame bridge is the longest of its kind in this country. J. A. Dunford.....*939
Schmitz Park bridge completed.....n*239
Tacoma, Wash.:
River St. viaduct (unit prices)..... 764
Thousand Is., N. Y.:
Bids for bridge received.....n427
Toll bridge to be built at Collins Landing n279
Turners Falls, Mass.:
Connecticut River bridge (unit prices) Je 17 adv. 24
Vancouver, B. C.:
First Narrows bridge progress..... 189
Washington, D. C.:
Pennsylvania Ave. bridge plans approved n36
Washington State:
Highway bridge construction (unit prices) .....June 24 adv. 28

BUILDING ACCIDENTS AND FAILURES

Daytona Beach garage collapses due to freak wind gust. C. E. Garnett.....*215
Detroit school truss failure results from using gusset plate as chord splice. W. O. Hinckley.....*787
Kansas City school collapses.....n317
New London, Tex. disaster reported on by expert n535
New London, Tex., school wrecked by gas explosion n*459, e457, n607
New York apartment house collapse..n273
n533, e530, n720
Philadelphia tenement house collapse indictments made n348

BUILDING CONSTRUCTION

Auditorium roof at Jamestown, N. D. supported by laminated timber arches *740
Cleveland mill construction job includes moving a river.....*880
Columbus printing plant constructed of glass block walls.....n*535
Cost check list..... 676
Detroit Builders Association stops work until labor situation is stabilized.....n721
Greenhouse with solid flat roofs to resist hailstones *298
Iowa City, Ia. newspaper building with walls partly of glass blocks.....*701
Low costs will increase construction....e645
Meadville, Pa., contractor erects 202 frame houses *77
New York World's Fair uses test building to test building material.....*963
Niles, Ohio, tin plate mill opened.....n*424
Prefabricated, welded houses.....*267
Schools should be safely built.....e719
Thin concrete roof for rock storage building *291
Vacuum process completes house walls in one day.....*403
Bridge to be replaced.....n895

BUILDING DESIGN

California school auditorium roof supported by hollow girders. W. T. Wright *560
Chicago factory designed to fit production requirements. G. L. Howse.....*124
Cincinnati factory saves one line of columns with cantilever floor.....*711
Factory buildings exhibit new trends in design *661
Hershey, Pa., sports arena has barrel concrete shell roof. Anton Tedesko...*505
Los Angeles:
Repairing earthquake damage. J. E. Byers *362
Los Angeles constructs earthquake-resistant design schools. H. W. Bolin..*415
Los Angeles safeguards schools against earthquakes. A. S. Nibecker, Jr. *359; e384
Purlins and girts in mill buildings considered as catenaries. Robin Fleming .....
Racine windowless office building.....n*
St. Louis greenhouse built with flat roofs to resist hailstones .....*
St. Louis greenhouse uses wrought iron extensively. G. B. Cushing.....
Building Officials Conference of America 1937 convention .....

BUILDING REGULATIONS

Building codes:
Baltimore code to be rewritten.....n
New England Building Officials Conference adopts code.....n
New York City Building Committee reports favorably on new code.....n
Pasadena code changed to permit use of brick .....n
New York Building Congress committee drafts ordinance for safe building construction .....
New York City tenement remodeling upheld by court.....n422, e429
New York Law permits life insurance for buildings .....n
Building repairs and alterations:
Repairing earthquake damages in Los Angeles. J. E. Byers.....*

BUILDINGS

Birmingham:
Rammed earth houses.....
Chicago, Ill.:
Public Administration Center started.....n
Republic Steel mill uses underfloor tunnels for machines.....n
Cleveland:
Leaking filter tank protected from frost by heated air space. Marshall & Whitmore.....*
Republic Steel mill construction job includes moving a river.....*
Columbus, Ohio:
Glass block walls for printing plant.n*
Fullerton, Calif.:
Light-weight aggregate in concrete for Junior College bldg. R. S. McLean .....*
Hershey, Pa.:
Sports arena has barrel concrete shell roof. Anton Tedesko.....*
Iowa City, Ia.:
Newspaper building with walls partly of glass blocks.....*
Jamestown, N. D.:
Laminated timber arches support municipal auditorium roof.....*
Linden, N. J.:
General Motors plant uses welded frames for roof.....n*
Meadville, Pa.:
Mass production of frame houses.....*
Meriden, Conn.:
Rigid saw-tooth frame for silver plant .....n*
Middletown, Ohio:
American Rolling Mills research building .....n109, n*
Nazareth, Pa.:
Thin concrete roof for rock storage building .....*
New York City:
Hospital buildings on Welfare Island .....n*
New York University dedicates new engineering laboratory .....n*
Rockefeller Center building completed
Niles, Ohio:
Tin plate mill opened.....n*
Paris, France:
Paris World's Fair. American building plan transmitted by radio.....n*
Pittsburgh, Pa.:
Aluminum bulkheads for flood protection installed in department store *254;
Irvin Works started.....n
Placentia, Calif.:
School auditorium with hollow girder roof. W. T. Wright.....*
Port St. Joe, Fla.:
Paper company lets contract on big development .....n
Puerto Rico:
Hospital units to be built.....n
Racine, Wis.:
Windowless office buildings.....n*
Rock Island, Ill.:
Concrete X-ray room. A. C. Hanson
St. Louis, Mo.:
Custom house facia columns carried on girders .....*
San Francisco:
Earthquake-resistant school. H. B. Hammill .....*
New mint building.....n*
Roofed arena without columns for livestock exposition .....
World's Fair building starts.....n*
Seattle, Wash.:
Boeing airplane factory has long span roof trusses .....n*
Shanghai, China:
Bank building to be constructed.... n
University, Ala.:
Aeronautical laboratory of University of Alabama has steel rolling door.n*
Washington, D. C.:
Air conditioning plant for federal buildings .....n*
Auditorium bill passed.....n279
Office space needs to be surveyed..n461

C

California Society of Professional Engineers .....n

CANALS

All-American Canal:
Contracts awarded for concrete drops and power plant substructures....n
Contracts let for siphons and bridges n894

* Illustrated; a, abstracts; e, editorials; l, letter; n, news

cut through the mountains.....n*533
Desilting plant for the canal. C. P. Letter *321
Progress 187; *258
San Diego may import water through the canal 908
Siphon pipe crossing (unit prices)..... 926
Cape Cod Canal:
Progress 185
Chesapeake and Delaware canal progress 185
Contra Costa canal started as part of Central Valley project.....n495
Florida Ship Canal:
Army study approves canal..n532; e530
Bill dead for this year.....n933
House committee recommends completion n889
Markham endorses canal.....n568
Progress 185
Will it pay? e603
Nicaragua Canal:
Any excuse urged for construction...e105
North Platte River diversion canal:
Break in Paxton siphon.....n573
Rio Grande canalization progress..... 185
St. Lucie Canal, Fla.:
Lock recommended n842
San Antonio River canalization proposed n761
Yakima Ridge canal:
Contract unit prices (unit prices) June 10 adv..... 48
Progress 188
Yakima Ridge canal and siphon (unit prices) 394
Cement:
Autoclave test as criterion of volume constancy adopted by cement manufacturers n351, e346
Charts:
Forecasting trends by graphic analysis with specific application to electric rates and water supply. W. W. Hay. *785
Chimneys:
Gold smelter in Corea completes concrete stack of 600 ft.....*778

CITIES

City engineer today. L. D. Gayton.....*638
City engineering developments in 1936.161
City engineering number.....*613–643
Financial practice hints..... 622
Labor employment policies bettered in various cities 637
Los Angeles County contracts for municipal service 230
Modernization of assessment procedure. 643
Municipal costs rise as population shrinks 366
Municipal engineering's advance in 1936. W. W. Horner..... 176
Municipal fiscal management. F. L. Bird *620
Municipal governments are enlarging their personnel 643
Municipal public works planning. J. P. Schwada..... 623
Municipal reports improving in quantity and quality..... 264
Municipal Year Book reports on new city services and extensions of old.. 669
Organization and personnel of a municipal engineering department. E. P. Goodrich *640
Per capita costs for sanitation service in 1926 and 1934 (table)..... 56
Personnel systems operated through outside agencies 44
Supercities of tomorrow.....e644
Survey of city needs. R. N. Towl.....*617
To build better cities.....e613
City planning, see Planning
Civilian Conservation Corps:
Flood control to be dropped as activity n422

COFFERDAMS

Bridging the Shark River on the New Jersey coast come under difficulties. E. R. Albertson.....*729
Marine Parkway bridge, N. Y. C. sets record for underwater cutting of sheetpiling for cofferdams. Ellsberg & Kandel *373
Pickwick Landing dam costs cut by pile pulling and re-use.....*327
Wellpoints used in foundations for small bridges. La Motte Grover.....*877
Columns:
Ornamental facia columns carried on girders of St. Louis custom house....*922

CONCRETE

A.C.I. meets in New York City....340, e346
Cleaning concrete surfaces to ensure bond. Daniel McFarland .....l 922
Coatings for special concrete finishes...*320
Floor slabs of concrete tested under concentrated loads 305
Forms:
Allentown, Pa. collapse of formwork..... n683, n759
Casting piles in layers saves forms and storage space.....*307
Collapsible forms for conduit at Imperial Dam *520
Fabric-lined forms for Kincardine-Forth bridge, Scotland. J. G. Brown .....l 923
Panel form staging for concrete work on Grand Coulee Dam. Daniel McFarland .....l *524
Slip form for conduit invert sections of Los Angeles aqueduct.....*564
Hot weather concreting at Imperial Dam 414
Light weight aggregate used in Junior College, Fullerton, Calif. R. S. McLean *484
Paint for seawater concrete..... 436
Puzzolana cement used for Bonneville spillway dam. R. R. Clark.....*219
Vacuum process to force out excess water helps complete exterior walls of house in one day.....*403
Why 2,000 lb. concrete? e346
Why 2,000 lb. concrete? Ben Morecll..l 491
Concrete aggregates e602
Conduits—See Aqueducts
Connecticut Society of Civil Engineering. A. W. Bushnell.....n314, n*351

CONSTRUCTION

A.G.C. present construction trends at meeting n684
Basic factors in the trend of construction. L. J. Chawner (charts)....249, e277
Building cost check list..... 676
Business side of construction.....75, 246, 354, 500, 688, 846
Columbus building lockout ends.....n930
Headlines of 1936..... 165
Labor: construction's big worry. H. W. Richardson *943, e937
Movies to show construction.....e140
1936 construction volume nears six billions (tables and charts)..... 167
Re-employment by construction industry lags behind manufacturing.....n683
Safety in construction..... e30
Statistics work of U. S. Dept. of Commerce urged on by Construction League n573
Summing up of reports for the year.... e31
U. S. Census studies the contracting business (tables) 549, e566

CONSTRUCTION EQUIPMENT

Belt conveyor jumbo aids in lining Mono Craters tunnel *521
Cranes:
Novel transfer system for overhead cranes 700
Development of jobs and machines in 1936..... 163
Dorr clarifier unit for desilting All-American Canal n*569
Equipment makers keep pace.....e140
Gantry places heavy pipe.....*514
German roadbuilding machine.....n*497
Improvements in materials in 1936. H. L. Whittemore 180
Ladder, folding, inside pipe holds scaffold for welders.....*587
Mixer manufacturers hold to A.G.C. rating 244
Motor car for inspecting inside of 36 in. water main. Howard Wait.....*296
Rock picker takes oversized stone from fills for canal banks.....*293
Scraper in fill compaction. H. L. Stilley .....l 139
Tamper:
Sheepsfoot roller wear in use on San Gabriel Dam decreased by revised design. Paul Baumann..... 707

CONSTRUCTION MATERIALS

Coatings, protective 845
Current prices 38, 208, 356, 502, 690, 848
Glass for building to be manufactured by Pittsburgh-Corning Corp.....n425
Making the most of materials.....e347
Strength of materials studies at special summer meeting n496
Unit prices.....248, 394, 429, 539, 611, 763, 800, 888, 926, 966

CONTRACTORS

Bids:
Identical bidding battle goes on....n760
Iowa highway commission probes identical bids n854
No collusion found on steel bids....n680
Bonneville contractor denied tax hearing n852
Bonneville profits held taxable.....n570
Compensation insurance costs reduced by new rating plan. J. W. Randall 581, e603
Court upholds labor union's strike against "lumping" n349
Detroit Builders Association stops work until labor situation is stabilized....n721
Extra work claim thrown out by Kentucky court n387
Extra work claim on Louisville, Ky., sewer denied by Appeals Court.....n423
Government held responsible for its delays to contractor for Trenton post-office 256, e277
Idaho license tax based on contract size n887
Insurance business e311
Insurance companies for contractors opposed by Illinois group..... 563
Pennsylvania bridge suit-arbitrator upheld by Supreme Court.....n795
Performance bonds required in New York n649
Road contractor, Stamford, Conn., found liable for workman's death...n839
U. S. Census studies the contracting business (tables) 549, e566
Winston Bros. vs. State Tax Commission suit denied rehearing.....n681

CONTRACTS

Alterations and extras. G. A. King 511, e530
Bureau of Contract Information to promote surety relations n650, e644
Los Angeles County contracts for municipal service 230
Performance bond law vetoed by New York governor n680
Unenforceable contracts. S. I. Sacks...l 490
Walsh-Healey Act changes urged.....n608
Cornell University gets anonymous gift.. n38

D

DAMS

Alamogardo Dam:
Progress *187
Bartlett Dam:
Arizona State suit for control of dam dismissed by court.....n840
Progress 187
Bluestone Dam:
New River dam approved by Markham n851
Bonneville Dam:
Contractor denied tax hearing.....n852
Fishways being constructed.....n*572
Fishways cost estimated.....n316, e310
Fishways on the Columbia River..n*932
Night photo n*32
Portland-puzzolan cement used for spillway. R. R. Clark.....*219
Power bill introduced.....n569
Power bill is modified.....n386
Power house construction includes Kaplan turbines. C. C. Galbraith..*765
Power plan attacked by Federal Power Commission n685
Power policy change opposed by Ickes n755
Power sale plan.....n312
Profits of the contractors held taxable n570
Progress 186
Scour prevention below dam. J. C. Stevens *61
True engineering shown in study of spillway e104
Boulder Dam:
Earthquakes may be caused by lake..n723
Good water prospects.....n842
Lake Mead's rise due to spring runoff 908
Power contracts up for revision.....n605
Power generation starts June 1 .....n756, e754
Power rate revision asked.....n793
Progress 186
Rheostat shocks the fish.....n*391
Brazos River Dam:
Construction costs to be studied.....n571
Brazos River Conservation District:
Injunction change permits construction of dams.....n423
Buchanan Dam:
Progress 183, 184
Bull Lake Dam:
Progress 188
Caballo Dam:
Progress 185
Chickamaugh Dam:
Lock is nearing completion.....*938
Conchas Dam:
Design and early work on the dam and reservoir project. J. R. Noyes.*541
Progress 184
Copper Basin Dam:
Construction (unit prices)..... 763
Emsworth Dam:
Lateral loading tests made on steel bearing piles. H. A. Vierheller....*667
New type of crest gate being installed. Elfred Bauknight...*665, e678
Flathead Dam:
Rock slide kills seven on project....n386
Fort Peck Dam:
Dredging records broken.....n963
Lining shafts with steel and concrete. Capt. A. W. Pence.....*742
Penstock lining. Capt. A. W. Pence.*693
Perforated pipe systems drain the closure slopes *773
Progress 186
Spillway n*839, n*925
Waste water will be pumped from core pool n681, n*682
Fruit Growers Reservoir Dam:
Earthfill dam fails.....n923
Gallipolis Dam:
Progress 186
Gene Wash Dam:
Construction (unit prices)..... 763
Grand Coulee Dam:
Bill to prevent speculation in adjacent land passed by Congress n792, e790
Cleaning concrete surfaces to ensure bond. Daniel McFarland..l 922
Cofferdam leak checked.....*595
Columbia Basin individual land holdings would be limited by proposed bill n607
Future of the project. James O'Sullivan .....l 529
High Dam appropriation for completion n851
Ice dam stops earth slide. Grant Gordon *211, e236
Ice dam stops new slide..... 404
Progress 186
Special panel form staging for concrete work. Daniel McFarland..l *524
Valuation of private land taken for dam construction not high.....n348
Work resumed n*536
Grant Lake Dam:
Developing a new water supply for Los Angeles *285
Hodges Dam:
Reservoir dam spillway.....n*388
Illinois bill proposed 10,000 dams.....n962
Imperial Dam:
Desilting works n*569
Driving Wakefield pile cutoffs.....*489
Hot weather concreting..... 414
Progress at dam.....*92, 187
Inks Dam:
Progress 184
Long Valley Dam:
Developing a new water supply for Los Angeles *285

* Illustrated; a, abstracts; e, editorials; l, letter; n, news

Marshall Ford Dam:
Dam designed for raising in future..*712
Gate contracts awarded 441
Progress 184
Mississippi River:
Dam No. 11 submersible Tainter gate n*279
Dam No. 13 (unit prices)..... 394
Dam No. 17 (unit prices)..... 429
Moon Lake Dam:
Progress 188
Norris Dam:
Tennessee flow cut by dam..... 156
Parker Dam:
Cofferdam withstands sudden flood... 670
Progress 182
Progress on dam.....n*648
Pickwick Landing Dam:
Pile pulling and re-use cuts cofferdams cost *327
Piedmont Dam:
Fifth of Muskingum flood dam completed n842
Pine View Dam:
Progress 188
Possum Kingdom Dam:
Cost estimates to be studied further.n110
Richelieu River, Que.:
Commission approves dam.....n894
Regulating dam to be built.....n536
Ruby Dam:
Bids asked for.....n851
Bids will be called soon.....n760
Gravity dam to be built..... n33
Hydro-electric project calls for bids on transmission line.....n422
San Gabriel Dam No. 1:
Sheepsfoot roller wear decreased by revised design. Paul Baumann.....*707
Spillway (unit prices) June 24 adv... 28
Spillway work begun n894
Sardis Dam:
Bids called for.....n316
Bids opened n424
Bids rejected n605
Hydraulic-fill dam (unit prices)..... 539
Rolled fill bids received.....n842
Seminoe Dam:
Pt. 1. Site exploration and design studies. K. B. Keener *395
Pt. 2 Construction plant. V. L. Peugh 399
Soil mechanics for small dams. Densil Doggett *409, e420
Southbridge, Mass.:
Contracts awarded for dam and reservoir (unit prices)..... 540
Taylor Park Dam:
Progress 187
Yankee-Meadows Dam, Utah:
Safety of dam investigated.....n931
Desbarats, George J. elected president of Engineering Institute of Canada.....n*242
Doors:
University of Alabama aeronautical laboratory has steel rolling door 46 ft. by 16 ft.....n*575
Drawing:
Drafting machine *654
Drawing stand, Je 17 adv..... *26

DREDGES AND DREDGING

Cleveland mill construction job includes moving a river.....*880
Fort Peck Dam closure slopes drained by perforated metal pipes.....*773
Golden Gate Fair—dredging fleet assembled for filling site.....*412
Montreal's low water condition suggests need for dredging harbor and the St. Lawrence n757
St. Lawrence River channel to be deepened by dredging and weir reconstruction *883
Soft bottom soundings in San Francisco Bay in connection with exposition.... 706
Sounding to mud.....e311
Dust:
Report on dust exhaust systems by A.S.A. n459
Dust storms:
Oklahoma dust in Michigan. R. R. Ryan 1 455
Dykstra, C. A., Cincinnati city manager, to be president of Wisconsin University.n427

E

Earth fill:
Cleveland mill construction job includes moving a river.....*880
Where practice remains backward..... e67

EARTHQUAKES

Boulder Dam earthquakes may be caused by lake.....n723
Los Angeles constructs earthquake-resistant design schools. H. W. Bolin.*415
Repairing Los Angeles earthquake damages. J. E. Byers.....*362
San Francisco school constructed of flat slabs of concrete for earthquake resistance. H. B. Hammill.....*918
Schools safeguarded against earthquakes. A. S. Nibecker, Jr....*359, e384
Seismic survey program extended into Montana *89
Eddy, Harrison P. dies.....n*895, e936
Electrical apparatus:
Boulder Dam rheostat shocks the fish..n*391
Electrical applications:
Electric conduits and floors. Monroe Ames 1 490
Flow meter 73
Meter, portable 244
Electric railways:
San Francisco-Oakland Bay Bridge railroad facilities (unit prices)..... 611
San Francisco-Oakland Bay Bridge rapid transit system. Purcell, Andrew & Woodruff.....*770
Electric rates:
Forecasting trends by graphic analysis with specific rates and water supply. W. W. Hay.....*785
Electrical transmission:
Ruby Dam hydro-electric project calls for bids on transmission line.....n422
Employees:
Municipal pay checks getting back to normal 483

ENGINEERING

Civil engineering in 1936—editorial survey *157
Educational methods should count.....e566
Guidance for prospective engineers.... e30
Hardy Cross' thoughts on engineering teaching. G. D. Houtman.....1 714
Twenty years of engineering.....e493
Engineering Institute of Canada:
Montreal meeting proposes professional consolidation n282
Engineering News-Record:
Typography and contents to be changed.e836
Engineering Society of Detroit:
Rackham Fund makes gift to society..n795

ENGINEERS

City engineer today. L. D. Gayton.....*638
Employment opportunities in engineering. William Stack.....1 529
Great engineers and publicity. J. W. Dunham 1 714
Licensing:
A.S.C.E. gives support to registration activities n315
Florida engineers ask change in law.n496
Illinois State Assembly of A.A.E. works for licensing engineers..... 419
Iowa license law passed.....n725
Nebraska and Texas pass registration bills n536
Nebraska appoints registration board.n761
New York State Society asked to take stand on unionization.....n796, e791
Oklahoma City engineer qualifies for license n796
Oklahoma City unlicensed officials forced out by professional society..n721
New York City's liability to consulting engineer 746
Organization and personnel of a municipal engineering department. E. P. Goodrich *640
Poor witnesses e836
Shortage of engineers. W. E. Brown...1 274
Shortage of engineers in Scotland..... 485
The title adds no dignity.....1 715
Too many engineers?.....e719
Union:
Labor union for the engineer. Louis Roberti 1 896
C.I.O. charter granted to engineers union n796
Federation of Architects, Engineers, Chemists and Technicians accuses structural firm n890
Federation of Architects, Engineers, Chemists and Technicians in New York City demands recognition....n931
Olympia, Wash. unions protest discharge of state highway men.....n841
Seattle engineers organize.....n796
Unionization movement in Washington. P. R. Rosen.....1 934

EROSION

Soil loss in Potomac River flood. S. K. Love 1 935
Soil Conservation Service studies roadside erosion control. Arnold Davis..*554
Soil erosion. Q. C. Ayres..... 1 65
Excavation:
All-American canal progress.....*258

EXPOSITION

New York World's Fair:
Bids asked for water system for Fair.n757
Grading accomplished in quick time..e492
Grading ends ahead of schedule.....n494
Progress 189
Salaries raised for engineers.....n497
Sphere and obelisk to comprise theme building n427
Subway extension for Fair urged....n107
Test building to test paint, building material n*963
San Francisco-Golden Gate Fair:
Dredging fleet assembled for filling site *412
Fair grounds filling.....n*647, *900
Progress 189
Soft bottom soundings in dredging work 706
Tidal currents resulting from artificial island to be studied.....n761

F

Federal Trade Commission:
Charges blueprint and pipe makers with unfair practices n534, e566
Valve and hydrant manufacturers ordered to stop price-fixing.....n794
Fire prevention and protection:
Hydrant designed for collisions.....*149
Water pipe layout for supply and for fire protection. Goldsmith & Tatnall.*811
Fishways:
Bonneville Dam fishways.....n*572, n*932
Bonneville Dam fishways cost estimated n316, e310

FLOODS AND FLOOD PROTECTION

Appropriations for flood control.....n892
Arkansas Commission appointed to control floods n648
Birds Point-New Madrid floodway fuse-plug levee dynamited to help Ohio flood .....*
Bonnet Carre spillway cuts crest of New Orleans flood. H. W. Richardson....n
Bonnet Carre spillway opened and "fuse plugs" ready to help flood. Paul Wooton .....
Cairo's flood conditions. W. W. Berard .....n
Cincinnati flood conditions. H. W. Richardson .....n
Connecticut River reservoir system. n841, n
Control of great floods. A. E. Morgan.
Control projects held up.....n
Data required for flood prediction. E. Foster .....
Droughts and floods. J. C. Hoyt..*
Dust bowl area flooded by heavy rains..n
Financing flood control. B. G. Marshall .....
Flood control. F. J. Salberb.....
Flood control begun. Brig. Gen. G. B. Pillsbury .....*
Flood control plan by Markham made public at hearing.....n
Flood control projects recommended for 1937 .....n
Flood control talk continues active..n
Flood control work in 1936.....
Flood discharges at gaging stations of U. S. Geological survey.....
Flood drama .....e
Flood formulas. Pritchett & Commons.
Flood of 1937—stages and discharges..n
Flood-plain trespassers. H. P. Busch.
Flood predictions. F. G. Christian...
Floods under control in Vicksburg and New Orleans districts.....n
Fly outbreaks threaten as aftermath of floods .....
Forecasting floodflows. W. R. Gregg....*
Indiana reports on flood damage to roads .....n
Los Angeles County flood control progress .....
Louisville flood .....n
Malaria and floods. J. A. LePrince...
Miami Valley floods sharply cut by dams system .....n
Mississippi flood crest flattens out.n279, e276
Mississippi flood fighting begins. H. W. Richardson .....*
Mississippi River cutoffs lower the flood crest (charts) .....*
Mississippi secondary flood causes trouble in New Madrid floodway...n
Mississippi Valley flood battle. H. W. Richardson .....*225, e
New England bridge building halted by high water .....n
New England flood compact supported..n
New England flood plan drafted.....n
New Orleans safe from floods without spillway error in report.....n
New York state flood control work to be done by contract labor.....n
Ohio floods reported as caused by government dams .....n
Ohio floods not caused by dams.....n
Ohio and Mississippi Rivers flood stages
Ohio and Mississippi stages from and discharges U. S. Geological survey....n
Ohio River Authority proposed by legislation .....n281, e
Ohio River basin-flood survey halted...n
Ohio road damage exaggerated.....n
Ohio superflood now threatens Mississippi levee .....
Ohio Valley flood conferences disagree on control procedures.....n
Ohio River flood tests Mississippi River flood control work.....*
Ohio Valley floods break all records....n
Ohio Valley rehabilitation. H. W. Richardson *380, e385 correction.....
Ohio's flood caused by twenty day storm .....*
Paducah evacuation typifies conditions in lower Ohio. H. W. Richardson...*
Paying for land protection. R. L. Sackett 1
Portsmouth, Ohio, to remove buildings made dangerous by flood.....n
Potomac River flood and soil erosions. S. K. Love.....1
Rezoning river cities to prevent flood loss .....
Rio Grande flood control progress.....
St. Francis River breaks levee and floods .....n*
Vermont ratifies flood pact.....n
Willamette River flood damage would be reduced by four reservoirs. I. C. Grimm .....*
Winooski River flood control progress..
Floors:
Electric conduits and floors. Monroe Ames 1
Florida Engineering Society:
Tampa meeting .....n
Fly outbreaks threaten as aftermath of floods .....
Forests and forestry:
T.V.A. forestry. E. C. M. Richards....1

G

GARBAGE AND REFUSE DISPOSAL

Disposal of garbage for food for pigs or for fuel.....e
Garbage grinding. F. J. McDevitt.....1
Municipal water supply and sanitation. S. A. Greeley.....*
Refuse disposal developments.....*
St. Louis grinds its garbage.....*58,
St. Louis grinds its garbage-correction. F. J. McDevitt.....1

Gates:
Emsworth Dam construction includes vertical-lift gates. Wilfred Baukknight *665
Lift Tainter gate. A. Streiff ..... l *897
Golden Gate Fair: see Expositions.

GRADE CROSSING
A.R.E.A. meeting reports on crossing elimination 489
Buffalo railway tracks to be removed..n842
Crossing elimination. J. G. Brennan....*200
Current status of United States program grade crossing projects 202
Elizabeth, N. J., calls for bids on grade elimination n423
New York City:
Tracks for New York Central to be placed in a depression..... 545
Regulations for federal aid to eliminate grade crossings..... n278
Street-car officials and grade crossing.. e30
Gregory, John H. dies.....n108, *144

H

HIGHWAY ADMINISTRATION
Apportioning county work declared illegal n683
Kansas highway department changed..n892
Minneapolis street paving organization. E. F. Campbell..... *437
Montana chief engineer reinstated.....n570
Montana department merger considered by legislators n390
Montana highway department changes personnel n147
Montana's state highway department merger with water and planning boards vetoed n495
Pennsylvania appoints new personnel in highway department n927
Pennsylvania highway engineers dismissed for "gravel scandal"...n854, n893

HIGHWAY CONSTRUCTION
Arizona highway department tests the stability of subgrade materials..... *775
Arizona oil processed road (unit prices) 764
Asphalt paving technology discussed by A.A.P.T. 231
Backfill shrinkage under pavement cuts reduced by grouting. R. A. Mayo.... *218
Brick paving practices discussed by N.P.B.A. 234
Colorado highway meeting..... 137
Cotton-reinforced asphalt road construction in Missouri. Leon Corder..... *128
Design values for highways need changing. J. S. Crandell..... *14
Fair-trade-practice roadbuilding as practiced in Wisconsin. H. G. Meigs.. 776
Iowa-stabilized base construction. A. E. Stoddard 122
Iowa-stabilized road base design. V. G. Gould 121
Kansas roads fight subgrade swelling: Field practice. Harold Allen..... *407
Lawrence test road. Barnes & Allen. *408
Research work. H. D. Barnes. *405, e420
Master plan for highways in the U. S. F. T. Sheets *909
Minneapolis does its paving by day labor. E. F. Campbell..... *437
Minneapolis pavement design and construction. E. F. Campbell..... *471
Mississippi road program held up by lack of bids..... n348
Mississippi's $42,500,000 road system—design and construction..... e*335, e346
North Carolina makes fine soil firm by bonding and sealing it with tar. T. V. Fahnestock *915
Oil-stabilization of road bases under test in Missouri. Reagel & Schappler..... *84
Oregon City road widened by difficult rock blasting job. E. A. Collier..... *301
Pennsylvania's highway system needs one hundred million for obsolescence. A. J. Bedard..... *304
Reconstructing an old concrete road in Missouri with maximum salvage. V. B. Saville *515
Skid-resisting surfaces for roads..... 870
Soil behavior knowledge still imperfect. A. Casagrande *8
Soil surveys and stabilization control practice. T. E. Stanton Jr..... *6
Statistical account of road growth (charts, maps, tables) 733, e754
Wisconsin extends farm-to-market roads. D. K. Elkstrom *525, e531
Wisconsin speeds road widening by changed concreting practice. A. T. Black *367
WPA signs e790

HIGHWAY DESIGN
Bypass roads and city access. A. W. Dean 946, e936
Computation of elliptical arches used on highway and parkway grade separations. W. B. Hogan..... l *524
Coordination of design and upkeep is lacking. B. H. Petty..... *3
Design trends to correlation with traffic needs. C. N. Conner..... *21
Formula for Wisconsin pavement crowns. Frank Cnare..... l *922
Good design requires vision beyond detail. W. C. McNown..... *24
Pavement design has evolved from practice. R. D. Brown..... *12
Stresses in concrete pavement. H. M. Westergaard *26

HIGHWAY ECONOMICS
Alabama Highway Corporation funds freed by court..... 607
Allotments apportioned to states..... n34
Gas tax diversion in Massachusetts held illegal..... n840
Gas tax diversion opposed in different states e645
Gas tax diversion under attack..... n315
Gas tax refund asked by contractor.. ..n33
Gas tax diversion in Washington state not approved by director..... n725
Gas tax diversion veto overruled by New Jersey legislation n647
Gas tax in New York State to be increased n720
Maryland commission and gasoline taxes e457
Maryland halts tax diversion to avoid federal penalties n571
Maryland penalized by U. S. Bureau of Public Roads..... n458
Mississippi's highway system progresses.n842
New Jersey federal aid cut may be tested in court..... n756
Regulations issued for federal aid n278, e277
Statistical account of road growth (charts, maps, tables).....733, e754
Highway Engineering Conference:
University of Colorado holds conference at Boulder 137
Highway lighting:
Oregon starts safety lighting program.n761

HIGHWAY MAINTENANCE
Arkansas highway inventory helped by measuring curves with trailer arm hitched to truck. J. M. DeBardeleben.*914
Coordination of design and upkeep is lacking. B. H. Petty..... *3
Ohio maintenance division kept snow off road at little cost. B. H. Frasch.. *90
Upkeep of highway recognized in current design. H. E. Surman..... *2
Highway marking:
Divided roadway experiments n*842
Traffic line marking experiments..... 627

HIGHWAY RESEARCH
Appropriation made for highway research laboratory n841
Kansas roads fight subgrade swelling. Field practice. Harold Allen..... *407
Lawrence test road. Barnes & Allen..*408
Research work. H. D. Barnes..... *405
More highway research necessary. J. C. Lang *18
Research an integral part of highway design. R. R. Litehiser..... 17

HIGHWAY SAFETY
A.R.B.A. dedicates itself to building safety into highways.....94, e104
Committee for safe road design and construction e860
Drivers to blame in accidents. Fred Lavis ..... l 896
Highway risk factors. R. S. Smith..l 455
I.C.C. issues safety rules for motor vehicles on highways..... n33
"Men working" signs. E. A. Mullen..l 563
New York State schools required to give instructions in highway safety and traffic regulations..... n651
Safer and better roads..... e31
Safety committee to work with Bureau of Public Roads..... n795
Traffic engineers discuss safety..... n838
Unfamiliar roads..... e791
Highway signs:
New York State Traffic Commission reports on traffic signals..... n390
Highway survey:
First surveys near completion..... n110
Highway traffic:
Planning streets and pavements. Sowers & Douglas *625

HIGHWAYS
A.H.O. of North Atlantic States meets in New York City..... n350
A.S.C.E. discuss basic highway data... 133
Advance of highways in 1936..... 159
Arizona asphalt surfacing (unit prices) June 17 adv. 24
Bureau of Public Roads gives course in soil study..... n933
Carlisle-Pittsburgh road approved..... n892
Chicago super highway system layout made public..... n886
Chicago's lakefront boulevard link. H. E. Young..... *546
Express highway asked for in Connecticut e493
Freeways by law..... e790
Galveston causeway progress..... 190
Indiana reports on flood damage to roads n389
Indiana state highways (unit prices).. 430
Indiana State Highway Commission in widening narrow bridges..... 123
Iowa highway commission probes identical bids n854
Kentucky—average prices on roads 1934-1937 (unit prices)..... 966
Kentucky court throws out extra highway work contract..... n387
Long Island Motor Parkway offered to the public n930
Long Island parkways progress..... 190
Maryland authorizes prison labor for state and county roads..... n761
Massachusetts—average 1936 highway prices (unit prices)..... 612
Michigan gets rid of road zigzags by three diagonal trunk highways. M. D. VanWagoner *552, e566
National Forest highway, Wyoming (unit prices) June 10 adv..... 48
New York City—cutting through congestion e860
New York City plans for express highway system n459
New York City elevated highway progress 189
New York City's express highway extension along Hudson River..... *863
New York City:
Henry Hudson parkway opened..... 190
New York sidewalks along state highways provided by state funds..... n857
New York State Commission proposes. n278
Northern-Wantagh parkway extension planned n458
Pacific Highway widening necessitates blasting of concrete wall..... *769
Pan American Highway:
Argentine section opened..... n36
Rio Choluteca bridge, Honduras, for Pan-American highway. McCullough & Archibald..... *87
Rio Tamasulapa bridge, Guatemala for Pan-American highway. McCullough & Archibald..... *912
Pennsylvania concrete paving (unit prices) 800
Prison Industry Board recommends prison road work n962
Rhode Island law provides for freeway highway construction..... n720
Soil Conservation Service studies roadside erosion control. Arnold Davis..*554
Sunrise Highway to be reconstructed..n205
Vehicle counter 728
Vibrated concrete..... e755
Washington State-concrete surfacing (unit prices) 966
Washington State consolidated all highway laws in general code.....n568, e566
Highways, see also Pavements, Streets

HOUSING
Arkansas passes bills on housing.....n532
Atlanta—University Homes announces rental n312
Birmingham rammed-earth houses whitewashed for protection..... 732
Boston housing project..... n*931
Brooklyn—Ten Eyck project advancing.*938
Cincinnati housing bills rejected at too high n724
Cincinnati housing contract awarded.... n69
Detroit Brewster project contract let..n57
Detroit housing project ordered redesigned 290
Evansville, Ind. project calls for second bids n494
Evansville, Ind. project redesigned.....n240
F.H.A. to guarantee modernization loans in disaster areas.....n649
F.H.A. conference discuss sites for low-priced homes 51
F.H.A. mortgages finance large scale housing 83
Guiding city growth. Robert Kingery.*635
International Federation for Housing & Town Planning and International Housing Assn. to hold joint conference in Paris 439
Lackawanna, N. Y. project to be started soon n283
Laws for housing lag in many states..n536
Meadville, Pa. contractor erects 202 frame houses *77
Milwaukee Parklawn project rentals announced n387
Minneapolis project redesigned..... n240
Nashville, Tenn. housing contract relet.n569
New York City Building Trades Council agrees not to strike low cost housing.n606
New York City:
Harlem River house rental set....n*534
Harlem River houses leased to the city n932
Tenement law changed..... n793
Tenement remodeling upheld by court n422
New York multiple dwelling law amended n651
New York State low-cost housing exempted from taxes for ten years...n651
New York State proposed legislation to facilitate low cost housing..... n532
New Zealand housing scheme..... n239
Pennsylvania sets up housing authorities n928
Prefabricated, welded houses..... *267
Projects now occupied, projects on which savings were effected..... n964
Rentals are low on Southern projects. n*145
Schenectady housing project redesigned.n*43
Shall subsidy replace regulation?..... e385
Status of P.W.A. housing projects in U. S. 191
Trailers 441, *440
Vacancies decline in many cities..... 34
Wagner-Steagall rent subsidy housing bill n348
Williamsburg project adds two more units n425, n725

HYDRAULICS
Desilting works for the All-American canal are justified. C. P. Vetter..... *321
Economic sizes of pressure conduits. Julian Hinds *443
Economic water conduit size. Julian Hinds *113, e140
Filter sand permeability studies. Marvis & Wilsey..... *299
Nomographic relationship of hydraulic friction factors. W. H. Overshiner.*565
Progress of hydraulic engineering. E. W. Lane 174

HYDRO-ELECTRIC POWER
Bonneville Dam power house construction includes Kaplan turbines. C. C. Galbraith *765
Buzzards Roost hydro grant restrained by Court n933
Buzzards Roost project receives funds from P.W.A. n423
Cabinet Gorge bill..... n423, n760
Clarion River project disapproved....n680

* Illustrated; a, abstracts; e, editorials; l, letter; n, news

Current River Power Co. denied license for project n33
Hetch Hetchy's power sale legality to be tested by Secretary Ickes.....n535
Loup River Public Power District project progress 187
Nebraska public power districts planning to buy out private utilities....e936
Nevada-California Electric Corp. asks for restrain of Imperial Irrigation District n933
Nevada-California Electric plans loan compromise with Imperial Irrigation District n841
Passamaquoddy:
Progress 186
Quebec sets up provincial hydro-electric authority n759
Santee-Cooper hydro hearings begin....n423
Skagit power project progress..... 186
Sutherland project progress..... 187
Water and power developments in 1936. 160

HYDROLOGY

Droughts and floods. J. C. Hoyt.....*196
Evaporation losses determined from Weather Bureau data. Meyer & Levens *481
Flood discharges at gaging stations of U. S. Geological survey..... 156
Forecasting floodflows. W. R. Gregg...*198
Ohio's flood caused by twenty-day storm*156
Snow survey reports supply of irrigation water in West good..... 739
Hydrology, see also Floods, Rainfall and Runoff.
Hydrometer computations simplified. E. E. Bauer *662

I

Illinois Society of Engineers:
Chicago meeting n242
Institute of Traffic Engineers:
Chicago Midwest meeting..... n838
Insurance:
Compensation insurance costs reduced by new rating plan. J. W. Randall.. 581, e603
New York law permits life insurance for buildings n854
International Association for Hydraulic Structures Research:
First international meeting..... 810
International Federation for Housing & Town Planning and International Housing Assn. to hold joint conference in Paris 439
International Hydrographic Bureau:
Government delegates chosen..... n387

IRRIGATION

Boise-Payette project progress..... 187
Brazos River Conservation District to construct dams through change in injunction n423
Casper-Alcova project progress..... 188
Central Valley federal reclamation project to advertise for bids..... n280
Central Valley project construction started on Contra Costa canal..... n495
Central Valley project progress..... 187
Central Valley reclamation project summary n924
Gila project dropped by House..... n792
Gila project progress..... 187
Grand Lake, Colorado, trans-mountain diversion will be a diversified project 732
Great Plains problem declared as national responsibility n280, e276
Imperial Irrigation District:
Nevada-California Electric plans loan compromise with district..... n841
North Loup River project progress..... 186
Ogden River project progress..... 188
Owyhee project progress..... 188
Reclamation projects appropriations..n838
Salt River project progress..... 187
Seminoe Dam to provide storage for Casper-Alcova irrigation water pt 1 K. B. Keener *395, pt 2 V. L. Peugh.*399
Shoshone-Heart project progress..... 188
Snow survey reports supply of irrigation water in West good..... 739
Sukkur, India, irrigation project..... n34
Sutherland project progress..... 187
Tri-County project granted license by Federal Power Commission....n683, e678
Tri-County project progress..... 186
Uncompahgre project progress..... 187
Upper Snake River storage progress..... 188
Willacy County project resumes work..n685
Irrigation, see also Land Reclamation

J

Jackson, Gen. Thomas H. dies.....n*570
Johns Hopkins School of Engineering
Celebrates 25th anniversary..... n389

L

LABOR

A.G.C. stresses labor relations at meeting n684, e679
Baltimore has labor shortage..... n758
Black-Connery bill hearings..... n889
Black-Connery labor bill..... n838
Black-Connery wage bill supported by Greene and Lewis..... n856
Bureau of Labor investigation determines that the indirect-direct labor ratio is 2.6 on post office projects..n282
C.I.O. revokes charter of ten building locals n720
Cincinnati building workers strike n851; strike settled n893
Construction labor e456
Court upholds labor union's strike against lumping n349
Labor Relations Act upheld by Circuit Court against El Paso Electric..... n463
Municipal labor employment policies bettered 637
New Mexican Commission sets construction wage rates..... n843
New York State passes "Little Wagner Act" n758
Olympia, Wash. unions protest discharge of state highway men..... n841
Redwood murdered in labor dispute.....n317
Survey of construction labor. H. W. Richardson *943, e937
Wage and hour bill would regulate unions n843
Wage increases raise steel prices..... n389
Wage rates in construction industry rise n70, e66
Wages on public works in Nevada to be prevailing wages n604
Labor, see also Engineers, Unions
Land:
Columbia Basin individual land holdings would be limited by proposed bill....n607
Speculation in land adjacent to Grand Coulee project prevented by Congress. n792, e790
Land reclamation, see Irrigation
Land slides:
Mexican town destroyed by mine tailings n840
Law:
Allowances for alterations and extras. G. A. King..... 511, e530
Lights and lighting:
See Highway lighting, Bridge lighting
Louisiana Engineering Society:
Officers elected n463
Louisiana State Planning Commission:
Members of commission appointed..... n34

M

Malaria:
Effect of floods on mosquito breeding and malaria transmission. J. A. LePrince 1 455
Mosquito workers warn of malaria increase n572
Maps and mapping, see Surveys and surveying.
Marx, Prof. of Stanford University, honored by alumni..... n*496
Maryland-Delaware Water & Sewerage Assn.:
Wilmington, Del. meeting..... n722
Massachusetts Society of Professional Engineers organize n964
Mehren, E. J. resigns as president of P. C. A. n797

MISSISSIPPI RIVER

Canalization progress 185
Channel program needs $37,000,000 appropriation n349
Cutoffs lower the flood crest (charts)...*265
Flood control expenditures recommended n760
Flood control is being tested by Ohio River flood *222
Flood crest flattens out..... n279, e276
Flood protection e421
Levee construction for 6 months of 1936 ..... n460
Levee system holding flood within bounds. H. W. Richardson..... n238
Stages and discharges from U. S. Geological survey n279
Models:
Bonneville Dam model studies made to prevent scour. J. C. Stevens..... *61
Montana Bituminous Conference:
Meeting to be held at Glacier Park....n964

MOSQUITOES

Airplanes sometimes transport mosquitoes 589
Malaria increase indicated by mosquito workers n572
Southern sanitation improvement program *872
Mosquito Abatement Officials:
Meeting in Berkeley, Calif..... n35

MOTOR VEHICLES

I.C.C. issues safety rules for motor vehicles on highways..... n33
Many city traffic accidents traced to pedestrians 480
Marsh buggy, auto, tractor and boat..*131
Motor car for inspection inside of 36-in. water main. Howard Walt..... *296
Photo-electric auto counter..... *653
State regulation of road vehicles "unreasonable" e310
Trailers:
Homes on wheels create new community problems *440
Trailer laws sought in national safety drive 441
Trucks:
South Carolina truck regulation invalidated n144
Municipal Finance Officers' Association
Survey shows that salaries are getting back to normal..... 483
Muscle Shoals, see Tennessee Valley Authority

N

National Asphalt Conference:
Conference to be held in Memphis....n886
National Concrete Contractors Conference:
Conference to be held in Chicago.... n34
National Paving Brick Association:
Detroit convention 1
National Silicosis Conference:
Committee reports presented.....n242,
New England Road Builders Assn.:
Boston meeting n*525
New Jersey Association of Municipal Engineers 938
New York State Sewage Works Assn.:
Pollution control urged at meeting.... 1
New York State Society of Professional Engineers n389, 1

P

Parking meters, see Street traffic

PARKS

Long Island parkways progress..... 190
Northern-Wantagh parkway extension planned 938
Riverside Drive, N. Y. extension of express highway track covering and park development *803

PAVEMENTS

Backfill shrinkage under pavement cuts reduced by grouting. R. A. Mayo.... *218
Brick paving practices discussed by N.P.B.A. 938
Current pavement design. R. D. Brown *1
Minneapolis does its paving by day labor. E. F. Campbell..... *1
Minneapolis pavement design and construction. E. F. Campbell..... *471
Omaha, Neb., modernizes and repaves arterial streets. Hardy Trustin..... *
Planning streets and pavements. Sowers & Douglas ..... *
St. Louis employs stage construction in street paving. L. A. Pottus..... *
St. Paul, Minn., modernizes its streets. G. M. Shepard ..... *
St. Paul, Minn., pavement surfaces depend on the bases. G. M. Shepard. *
Stresses in concrete pavement. H. M. Westergaard ..... *
Pavements, see also Highways
Penstocks:
Shannon penstocks ..... n*
Photoelectric cells control drawbridge closing at Kincardine-Forth bridge, Scotland 9

PILES AND PILING

Casting piles in layers saves forms and storage space ..... *
Driving Wakefield pile cutoffs at Imperial Dam ..... *
Marine Parkway bridge, N. Y. C. makes sheetpile cutting record for underwater work. Ellsberg & Kandel..... *
Pickwick Landing dam costs cut by pile pulling and re-use..... *
San Antonio, Tex., bridge features piles with drilled, reamed holes. J. W. Beretta ..... *
Steel H-piles lagged with bolts or welding. Durkee & McIntosh..... 1
Tests made on steel bearing piles at Emsworth Dam to determine lateral loading. H. A. Vierheller..... *

PIPES AND PIPE LINES

California steel pipeline (unit prices)... 4
All-American canal siphon pipe crossing (unit prices) 9
Cleveland sewage plant uses rubber expansion joint ..... *
Distribution system design for water works. Goldsmith & Tatnall ..... *
Federal Trade Commission charges unfair practices by manufacturers of cast iron pipe ..... n534; e
Gantry places heavy pipe ..... *
Los Angeles County sewer of concrete with metal joints for ocean bottom.. *
Monopoly charged in concrete pipe ....n
Threadless pipe fittings 7
Water main cleaning. Clinton Inglee .. *
Pipes and pipelines, see also Aqueducts

PLANNING

Bypass roads and city access. A. W. Dean. ..... 946; e
City planning:
Back from the depression. C. W. Ham
Cities unprepared for building boom..
City engineer today. L. D. Gayton. ..
Guiding city growth. Robert Kingery *
Missouri group created to fight city decay 6
Rezoning river cities to prevent flood loss 6
Survey of city needs. R. N. Towl. ...*
Harvard University to hold conference on planning n7
Master plan for highways in U. S. F. T. Sheets. ..... *
New York City—county planning under way n8
New York City's West Side transformed by new construction ..... *
Regional planning asked by President..n2
Rural and urban zoning discussed by A.S.C.E. 1
Water resources Committee's report on drainage basin development. Abel Wolman ..... *
Who should serve on planning boards?.. 5
Pollution, see Water pollution

PORTS AND HARBORS

Appropriations for rivers and harbors..n
Bayone terminal ..... n313, n649, n
Brownsville, Tex., port development. C. J. Howard. ..... *
Canton port administration to be advised by E. P. Goodrich ..... n

Capetown Harbor to be developed 495
London port improvements to cost sixty million *50
Montreal low water condition suggests need for dredging St. Lawrence....n757

POWER AND POWER PLANTS

Arthur Morgan states his views on national power policy 101; e104
Brookings report recommends centralized agencies for power n758
Court refuses to enjoin P.W.A. power loan to municipalities n756
Hetch Hetchy's power sale legality to be tested by Secretary Ickes n535
Los Angeles Gas & Electric Corp. electric plant purchased by Los Angeles..n147
Nebraska districts may buy four power companies n843
New York files suit to compel Niagara Falls Power Co. to pay for water diverted n885
New York Power Authority urges St. Lawrence development n649
New York to be short of power unless St. Lawrence is developed e679
President seeks a power policy..n145; e140
Quebec proposes public power development 452
Rate practices e898
San Francisco votes against municipal power plant n426
Senate approves investigation of propaganda on power n839
Tri-County project granted license by Federal Power Commission....n683, e678
Power and Power Plants, see also Hydroelectric power, Dams, Bonneville, Boulder

PUBLIC WORKS

Appropriations bill reported favorably by House n756
Back from the depression. C. W. Ham... 615
Basic trends in the trend of construction. L. J. Chawner (charts)...249; e277
Budget calls for economy in public works n604
Budget for construction of public works in 1937 .....n68; e66
Cincinnati abandons P.W.A. aid for its public works n569
Cincinnati refuses to have more to do with PWA e602
Cincinnati requests grants again.....n930
Municipal engineering's advance in 1936. W. W. Horner. 176
Municipal public works planning. J. P. Schwada 623
National Resources Committee submits public works program n240; e236
Nevada passes act requiring prevailing wage on public works n604
Poland announces big public works program n386
President recommends a department of public works n68; e66
Program for public works needed. W. G. Federlein. .....l 753
Survey of public affairs in 1936 158

PUBLIC WORKS ADMINISTRATION

Allotments near standstill under new regulations n681
A. S. Tuttle asks public authorities to plan ahead e141
Bureau of Labor investigation determines that the indirect-direct labor ratio is 2.6 on post office projects....n282
Life extended two years.....n851
Loans and grants:
Court refuses to enjoin power loan to municipalities n756
Four grants made on 45 per cent basis n609
Grant of 45% for seven jobs.....n932
Individual negotiation replaces fixed grant n423
Subsidy or enterprise?.....e678
Local relief contributions thrown out by Senate n927
Pennsylvania grant includes provisions that labor on building be 75% relief labor n312
Personnel reduced n205
Report asserts two-thirds cost is provided locally n683

PUMPS AND PUMPING

Check valve device for pump in water works system. G. A. Shipe.....*376
Colorado River Aqueduct pump designs changed by laboratory tests. J. M. Gaylord *45
Selecting pumping equipment for water works. C. B. Burdick.....*805
Purdue University:
W. K. Hatt to retire as head of engineering school and R. B. Wylie to be new head.....n*723
Wiley is engineer head.....n761

R

Rail and Water Terminals, see Ports and Harbors
Railway terminals:
Los Angeles Union passenger terminal progress 190
Newark terminal in its second stage..n*841

RAILWAY TRACK AND TRACKWORK

Cooper's engine loading reduced to formula. R. E. McFee.....*716
Rails:
A.R.E.A. meeting reports on rail research 486, e531
Heat treatment n426
Use of long rails..... 487

RAILWAYS

A.R.E.A. meets in Chicago.....n *460
Locomotives:
Diesel maintenance not high. B. F. Affleck .....l 935
Pennsylvania R. R. builds new steam locomotive n856
New York Central work in New York City progress 190
New York City—extension of express highway along Hudson River involves track covering *863
Old Colony Railroad proposes separation from New Haven Railroad e755
Pennsylvania R. R. electrification contracts .....let n351
Pennsylvania R. R. plans extensive electrification of its lines..... 269
Pennsylvania and New Haven to build new steam locomotives.....e860
Quebec mining area to have another railroad n608
Quebec mining railroad bill passes legislature n619
Sante Fe line to Gulf completed. G. L. Mercer *577

RAINFALL AND RUNOFF

Dust bowl drought feared.....n839
Evaporation losses determined from Weather Bureau data. Meyer & Levens *481
Forecasting floodflows. W. R. Gregg..*198
Ohio's flood caused by twenty-day storm *156
Oklahoma pounded by hail.....n854
Rapid transit:
New Jersey transit plan urged by Port of New York Authority.....n350
Reclamation, see Land Reclamation, Irrigation
Redwood, Norman murdered in labor dispute n317
Research:
Civil engineering research advances in 1936. Inge Lyse.....*172
Governmental Research Association reports on problems..... 660

RESERVOIRS

Allentown, Pa., stringer failure caused collapse of formwork.....n759
Allentown, Pa.—nineteen workmen injured as formwork fails.....n683
San Francisco concrete reservoir (unit prices) 429
correction 611
Resettlement Administration:
Relief labor not required on housing..n606
Retaining walls:
New York City's express highway extension along Hudson River.....*863
Rhode Is. Society of Professional Engineers:
National Society of Professional Engineers organizes society.....n961

RIVERS

A.S.C.E. discusses river basin studies.. 133
Appropriations for rivers and harbors..n892
Connecticut River navigation to be surveyed n404
Green River-Bear River diversion to be studied by Utah, Idaho, Wyoming...n426
National Resources Committee report on river resource management.....e567
Rio Grande canalization progress..... 185
Rio Grande problems discussed at A.S.C.E. meeting 674
Rio Grande rectification progress..... 184
River conservation e899
River and harbor projects for 1937.... n32
Rivers, see also Mississippi, St. Lawrence, Tennessee, etc.
Roads, see Highways
Road show, see Am. Road Builders Assn.

ROOFS AND ROOFING

California school auditorium roof supported by hollow girders. W. T. Wright *560
French all-steel hangars have suspended plate roofs *49
Hershey, Pa., sports arena has barrel concrete shell roof. Anton Tedesko..*505
Rock storage building constructed with concrete arch roof.....*291

S

St. Lawrence River:
Deepening the St. Lawrence River by dredging and weir reconstruction n757, *883

SANITATION

Costs of cities sanitation service (table) 56
Mexico and United States to unite in sanitation project in Tia Juana Valley n721
Municipal water supply and sanitation. S. A. Greeley.....*631
New York City Department of Sanitation employees given engineering scholarships n534
Sanitation stirs the South. E. J. Cleary *872
The South advances in sanitation. H. C. Baity .....l 934
Street maintenance. W. B. Shafer....*628
Seawalls, see Shore Protection

SEWAGE TREATMENT

A. S. C. E. discusses sewage treatment.. 133
Buffalo's Bird Is. sewage equipment contract awarded n425
Chicago Sanitary District treatment progress 183
Cleveland plant blower line uses rubber expansion joint *907
Cleveland sewage treatment progress.. 183
Current notes on sewage disposal. Willem Rudolfs 102, 272, 442, 713, 920
Denver's sewage disposal plant progress 186
New Brunswick sewage plant aids Raritan River clean-up. D. M. Vail.*751
Niagara Falls sewage treatment progress 184
Permission to see German sewage plants. Frank Bachmann .....l 601
Separate sludge digestion facilities at plants e456
Soap from sewage..... 702
Washington treatment plant progress.. 184
Washington's sewage treatment and sludge digestion plant. F. A. Marston *431

SEWERAGE

Atlanta sewage disposal progress..... 183
Belleville, Ill., ordered to stop sewage pollution of streams.....n388
Boston Harbor pollution increasing and sewage disposal facilities should be extended 292
Buffalo disposal system to be operated by consulting engineers.....n857
Buffalo sewage disposal progress..... 183
Chicago Sanitary District makes semi-annual report n110
Mexico and United States to unite in sanitation project in Tia Juana Valley n721
New Jersey consolidates sewer services in 80 municipalities 534
New York City sewage disposal progress 184
Southern sanitation improvement program *872
Tennessee reports on water supply systems and sewerage facilities..... 233
Tipton, Ind., modernizes sewerage system under Federal Works program. Lew Richards *702
Twin Cities sewage works progress.... 183

SEWERS

Buenos Aires, Argentina to extend storm drainage system 261
Buffalo completes first section of sewer n36
Detroit sewer outlet tunnel (unit prices) 800
Hyperion ocean outfall sewer, Los Angeles, reconstructed *670
Los Angeles County sewer on ocean bottom has joints of novel design..*369
Los Angeles outfall sewer excavation checked by template.....*551
Los Angeles sewers found on inspection to be damaged by acid.....*519
Los Angeles White's Point sewer outfall progress 183
Louisville, Ky., sewer contractor denied payment for extra work by Appeals Court n423
Miami Beach to lay long sewer outfall.n462
New York sewer tunnel holed through.n857
Tipton, Ind., modernizes sewer system under Federal Works program. Lew Richards *702
Tokio plans completion of sewer system 565
Shore protection:
North Carolina beaches protected by dune construction work 330

SILICOSIS

Air Hygiene Foundation to study dust diseases n887
Committee reports presented ...n242, e236
Dust exhaust systems report issued by A.S.A. n459
New York State approves silicosis code.n847
New York State law on silicosis.....e456
Silt:
Desilting works for the All-American canal are justified. C. P. Vetter.....*321
Ski jump structure built at Chicago stadium. I. D. S. Kelly.....*328
Smoke pollution reduced over New York City 752

SOIL MECHANICS

Arizona highway department tests the stability of subgrade materials *775
Foundation methods for road building. T. E. Stanton, Jr. *6
Hydrometer computations simplified. E. E. Bauer *662
Indiana studies soil mechanics in building earth dams. Denzil Doggett..*409
Joint meetings on soil mechanics. Bauer, Proctor. .....l 65
Kansas roads fight subgrade swelling:
Field practice. Harold Allen *407
Lawrence test road. Barnes & Allen. *408
Research work. H. D. Barnes..*405, e420
Laboratory of Muskingum Conservancy District to be moved n761
Measures of soil behavior are still imperfect. A. Casagrande *8
North Carolina makes fine road soil firm by bonding and sealing it with tar. T. V. Fahnestock *915
Progress in soil mechanics in 1936. A. Casagrande 179
Squeeze test for integrity of soil samples. D. M. Burmister. *588
U. S. Bureau of Reclamation measures soil moisture. D. O. Ehrenburg. *708
Stadiums:
Chicago stadium has ski jump of timber 180 ft. high. I. D. S. Kelly.....*328
Standardization:
Mixer manufacturers hold to A.G.C. rating 244

• Illustrated; a, abstracts; e, editorials; l, letter; n, news

STEEL
Brunorizing plant for heat-treatment of rails n426
Highway bridge building creates large steel market 773
Steel orders up 9 per cent n650
Stevens Institute of Technology:
Engineers to study economics at summer camp n681

STREET TRAFFIC
New York City wins award for traffic safety n425
Parking:
Alabama court rules against parking meters n106
Huntington, W. Va., prevented from using meters n931
Parking and traffic statistics for Chicago 368
Planning streets and pavements. Sowers and Douglass *625
San Francisco-Oakland Bay bridge traffic and approach problems. Purcell, Andrew and Woodruff. *331
Traffic line marking experiments 627

STREETS
Omaha, Neb., modernizes and repaves arterial streets. Hardy Trustin. *592
St. Louis employs stage construction in street paving. L. A. Pettus. *228
St. Paul, Minn., modernizes its streets. G. M. Shepard *704
Street maintenance. W. B. Shafer. *628
Structural Clay Products Institute:
Prize competition announced in use of brick and tile 576

STRUCTURAL DESIGN
Computation of elliptical arches. W. B. Hogan l*524
Cooper's formula used in relation of span to live load stresses. R. E. McFee *716
Detroit school truss failure results from using gusset plate as chord splice. W. O. Hinckley. *787
Flat slab designs compared with code requirements 132
Frame analysis. Robins Fleming. ..... l 858
Localized stress in brittle material. T. J. Dolan. ..... l 714
Purlins and girts in mill buildings considered as catenaries. Robins Fleming. 470
Relaxation of constraints—a method of frame analysis. D. C. Williams. ..... l 491
Volume of intersecting arches. Joseph Siligman. ..... l 139
Structural design, see also Beams, Bridges, Buildings, Building design
Structural Engineers Assn. of Northern California:
College seniors speak at meeting n757
Subsidence:
Causes of land subsidence. F. R. Harris. ..... l 858
Santa Clara Valley. E. E. Stohsnet. *479, e492
Santa Clara Valley subsidence caused by pumping. O. E. Meinzer. ..... l 715

SUBWAYS
Boston subway bill passed n535
New York City:
Progress 190
Queens extension opened n32
Sixth Avenue subway:
Bidder on section 6 ..... n725
Section 6—contract unit prices (unit prices) 888
Toughest job in underground transit construction *655, e678
Subway extension to World's Fair n107

SURVEYS AND SURVEYING
Arkansas highway inventory helped by measuring curves with trailer arm hitched to truck. J. M. DeBardeleben. *194
Brookings Institute recommends consolidation of mapping activities n794
California orange grove surveys require no axmen *555
Canadian mapping agencies grouped in one department n206
Elevation should be put on benchmarks. K. T. Roberts ..... l 139
Elevations on bench marks Hawley, McDowell, Studdert 1, 274, correction. 308
Filed plotting of stadia topography obtained with Topo-Table. Paul Van Buskirk *564
Level lines at Lake Mead. J. H. Hawley ..... l 858
Santa Clara Valley benchmark subsidence. E. E. Stohsnet. *479, e492
Spherical trigonometry neglected. C. H. Hittle ..... l 715
Teachers of surveying to hold conference n281
Topographic map program given to Congress n280, e310
Using the engineer's transit to determine orifice coefficients. T. D. Smith. *717

T

TAXATION
Chicago railway tunnel held not taxable. n893
Cities are modernizing their assessment procedure 643
Gasoline taxes, see Highway economics
Idaho contractors license tax based on contract size n887
Installment payment of taxes survive in many cities 523
Limits on real estate appraised 449
Municipal fiscal management. F. L. Bird *620
National Assn. of Assessing Officers study recommends tax assessing as a county function 375
New York Building Congress endorses Belter bill n497
New York's water supply engineer does not have to pay income tax. n425, n458
Questionnaire on taxation answered by 126 professors 100
Washington State use tax upheld by Supreme Court n498
Telescope, Mt. Palomar *862

TENNESSEE VALLEY AUTHORITY
Alabama Power Co. removed from anti-TVA group n682
Appropriations asked n572
Appropriations for TVA awaiting consideration n684
Arthur Morgan states his views on national power policy 101, e104
Blandford, J. B. Jr. is appointed manager n928
Flood damage and dam statements refuted n424
Forestry in the TVA. E. C. M. Richards ..... l 344
Georgia TVA decision upheld by U. S. Supreme Court n532
Georgian court upholds TVA n458
Injunction against expansion of power distribution facilities set aside n756
Injunction against TVA overruled in Georgia n205
Injunction order appealed n32
Muscle Shoals valuation investigation not completed n70
Progress 185
Reservoir storage release n239
Wages raised n34
Wanted—honest accounting e678
Traffic control, see Highway traffic, Street traffic

TRANSPORTATION
Canadian unified transport regulation proposed n314
Regulation of transport in Connecticut discussed at Civil Engineers meeting. n314
Survey of transportation in 1936 159

TUNNELS
Baltimore water tunnel progress 182
Baltimore water tunnel to be constructed n36
Cascade Mountain tunnel:
Proposal to build tunnel revived n855
Chicago railway tunnel:
Tunnel not taxable n893
Colorado River aqueduct:
San Jacinto tunnel workers given wage increases n462
Delaware tunnel approved by N. J. legislature n686
Fort Peck:
Penstock lining. Capt. A. W. Pence. *693
Trash rack n*462
Japan begins work on railway tunnel. n107
Moffat water tunnel:
Progress 182
Mono Crater Tunnel:
Belt conveyor jumbo used for lining tunnel *521
Concrete aggregate warmed by steam heating plant *273
Los Angeles develops a new water supply *285, e310
Progress 182
Montebello water tunnel, Baltimore (unit prices) 611
New York City:
Battery-Brooklyn tunnel authorized. n722
Battery-Brooklyn tunnel plans completed n351
Crosstown tunnel funds requested from PWA n35
Lincoln (Midtown):
Blasting accident n851
Contract awarded for second tube. n241
Description of design and construction of tunnel *901
Second tube started 545
Speed record in driving first tube *955, e936
Manhattan-Richmond tunnel urged. n317
Midtown tunnel named Lincoln n650
Queens-Midtown tunnel:
Authorized n722
Bids for major contract advertised. n568
Bid for tube and shaft construction. n840
Progress 190
Setting timber frames n*387
Railroad freight tunnel under the Bay found uneconomical n924
New York Sewer tunnel:
Holed through n857
Rotterdam, Holland:
Vehicle tunnel under Maas River. n349. *784, ... e790
San Francisco Golden Gate Bridge tunnel approach n*928
San Jacinto tunnel:
Progress of the tunnel *302
Typhoid fever:
Saving lives e420

U

UNEMPLOYMENT
Employer should answer applicant's letter. G. E. Somma ..... l 455
Permanent idleness e861
Public works program for unemployment proposed by House group n386
Senate Committee to hold hearings on bill for unemployment census n682
Where is the unemployment e530
Work relief or reemployment 105
Unit prices ... 248, 394, 429, 539, 611, 763, 888, 928
U. S. Bureau of Reclamation:
John C. Page named to head reclamation n*144
U. S. Civil Service:
Attracting better candidates for civil service tests 326
U. S. Chamber of Commerce:
Construction recovery problems studied. n*82
Program for meeting n606
U. S. Coast & Geodetic Survey:
Elevation should be put on benchmarks K. T. Roberts ..... l 139
Elevation on bench marks. Hawley, McDowell, Brown 1 274; correction ... 309
Report on basic control surveys n897
San Francisco Bay tidal currents resulting from World's Fair island to be studied n761
Seismic survey program extended into Montana *89
U. S. Dept. of Interior:
Appropriation bill passed by House. n792
U. S. Government:
Opposition to president's plan for reorganization of departments n198
U. S. Navy Yard:
Model basin bids asked n759
U. S. Treasury Department:
Staff reduced n724
U. S. War Department:
Appropriations bill hearings n724
Appropriations for flood control, river and harbor improvement n892
Southwestern Division established at Little Rock, Arkansas n721
U. S. Weather Bureau:
Appropriation increased n841
University of Kansas:
I. C. Crawford to head engineering school n724
University of Maryland—receives two libraries n651

V

Vermont Society of Engineers:
Burlington meeting 573

W

Walls:
Cleveland's leaking filter tank protected from frost by heated air space. Marshall & Whitmore *294
Wason, Leonard C., concrete expert, dies. n685

WASTES, INDUSTRIAL:
Current notes on sewage disposal, Willem Rudolfs. ... 102, 272, 442, 598, 713, 920
Economical treatment of paper mill waste 835
Water consumption:
Kansas City benefited by waste water survey 821
Waste water surveys increase efficiency and income. E. K. Wilson. *819
Water mains:
Cleaning water mains. Clinton Inglee. *822
Motor car for inspecting inside of 36-in. water main. Howard Wait. *296

WATER METERS:
Danvers, Mass. maintenance aids for water works. R. W. Esty. *824
Meter maintenance. C. A. Gallagher. ... *816
When the customer complains. L. A. Smith *833

WATER POLLUTION:
Barkley pollution bill introduced. n106, e104
Belleville, Ill. ordered to stop sewage pollution of streams n388
Boston Harbor pollution increasing and sewage disposal facilities should be extended 292
Boston considers building long aqueduct. n243
Colorado to check pollution of stream within the state n32
Dallas, Tex. stricken with diarrhea epidemic n648, e645
Legislation against stream pollution. ... e754
Montreal sued for river pollution due to delay in construction of sewer n106
National Resources Board urges federal pollution aid n570, e566
New Brunswick sewage plant aids Raritan River clean-up. D. M. Vail. *751
Ohio pollution control commission appointed 804
Potomac River conference e456
Potomac state officials meet to consider river basin laboratory n494
Southern sanitation improvement program *872
Stream pollution hearings held n496
Vinson stream pollution bill passed by the House n647
Water pollution—See also Sewage treatment, Sewerage

WATER RESOURCES:
National Resources Committee reports on drainage basin studies n145
Norris regional authorities bill is power measure n892
Norris regional bill hearings n930
President advocates seven new conservation districts n855
Water Resources Committee's report on drainage basin development. Abel Wolman *476

* Illustrated; a, abstracts; e, editorials; l, letter; n, news

WATER RIGHTS:
New York State files suit to compel Niagara Falls Power Co. to pay rental for water diverted.....n885
Rio Grande's problems.....e531
Texas and Mexico water rights discussed at A.S.C.E. meeting..... 674

WATER SUPPLY:
Birmingham, Ala. building a separate water supply for industries only.....*591
Boston water supply progress..... 182
Cincinnati groundwater supply surveyed 827
Colorado Springs project progress..... 182
Grand Lake, Colorado, trans-mountain diversion will be diversified project.. 732
Hawaii eliminates saltwater contamination by new type of well. N. D. Stearns *450, e456
Kansas City benefited by waste water survey 821
Little Rock, Ark. water supply progress 182
Long Island's groundwater problem. Russell Suter *697
Los Angeles Mono Basin project water development *285, e310
Los Angeles aqueduct surveyed through orange groves *555
Memphis has more than 150 privately owned well water supplies..... 88
Municipal water supply and sanitation. S. A. Greeley.....*631
National Resources Committee submits public works program.....n240, e236
New Jersey Assn. of Municipal Engineers meets in Trenton.....n462
New Jersey Section of A.W.A. hears reorganization plan n388, e384
New Jersey water bills unlikely this session n724
New York water supply trends forecast by graphic analysis. W. W. Hay....*785
New York City-Delaware aqueduct gets underway *41
New York City plans budget for Delaware water supply.....n313
New York City's Delaware project progress 182
New York City's Delaware River aqueduct system started.....n*494
Philadelphia mayor urges Pocono water supply n535
Philadelphia water supply plan dropped by legislature n962
Pittsburgh system passed upon.....n963
Pittsburgh water supply system proposed by mayor.....n792
Riverside, Calif. cools hot well water for use in city system.....*130
San Diego may import water through the All-American canal..... 908
Underground supply limitations.....e719
U. S. Supreme Court holds water supply is municipal function and water officials' salaries are tax-exempt.....n458
Valve and hydrant manufacturers ordered to stop price fixing.....n794
Waste water surveys increase efficiency and income. E. K. Wilson.....*819
Wichita, Kan. demand for cooling water exceeds underground supply.....*746

WATER TREATMENT:
A.S.C.E. discusses water treatment..... 133
A.W.W.A. discusses water treatment at convention 949
Better water treatment. Paul Hansen..*801
Charleston, S. C. sea water intake for water softening plant (unit prices)... 926
Chicago filter plant granted state permit n317
Cincinnati filter plant progress..... 182
Filter sand permeability studies. Mavis & Wilsey.....*299
Maryland-Delaware Water & Sewerage Assn. meeting features water treatment n722
Milwaukee filter plant progress..... 182
Riverside, Calif. cools hot well water for use in city system.....*130
Springfield, Ill. water softening plant progress 182
Tennessee reports on water supply systems and sewerage facilities..... 233
Waterway economics e898

WATER WORKS:
A.W.W.A. convention at Buffalo..... 949
A.W.W.A. Illinois section meets at Chicago 745
Annual water works number.....801-835
Chicago water works progress..... 182
Controlling flow of water in water works with valves. D. D. Gross.....*813
Customer accounting for water companies. H. F. Smith.....*830
Danvers, Mass. maintenance aids for water works. R. W. Esty.....*824
Distribution system design. Goldsmith & Tatnall *811
Financial policies of water works utilities. T. A. Leisen.....*828
Louisville, Ky. water pumping station renovated *810
Newport, R. I. offers to compromise water plant valuation.....n842
Pumping equipment selection. C. B. Burdick *805
When the customer complains. L. A Smith *833

WELDING:
Lincoln Arc Welding Foundation prize competition announced n320
Lincoln prize competition receives first paper n758
Los Angeles County sewer of concrete with metal joints welded to reinforcing cage *369
Meriden, Conn. silver plant employs rigid saw-tooth frame.....n*794
Research in welding for the future..... 582
Steel pipe for Colorado River aqueduct welded by improved methods.....*747

WELLS:
Cincinnati groundwater supply surveyed 827
Groundwater data compiled..... 216
Groundwater levels in Utah..... 597
Hawaii eliminates saltwater contamination by new type of well. N. D. Stearns *450
Long Island's groundwater problem. Russell Suter *697
Memphis has more than 150 privately owned wells 88
New Jersey seeks to control private wells 81
Wharves and docks:
Brownsville, Tex. port development. C. J. Howard *556

WORKS PROGRESS ADMINISTRATION:
City mayors ask federal support for W.P.A. employees n425
Dispute over control e837
Funds expended for first 18 months.....n571
Senate Appropriations Committee recommends appropriation with 40% local contribution n889
World's Fair at New York City—See Exhibitions

AUTHOR INDEX

Affleck, B. F.: Diesel maintenance not high .....l 935
Albertson, Edwin R.: Cofferdamming difficulties in a narrow tideway.....*729
Allen, Harold: Field method of stabilization for Kansas roads.....*407
Allen, Harold & H. D. Barnes: Verification sought from test road in Kansas*408
Ames, Monroe: Electric conduits and floors .....l 490
Andrew, Chas. E., C. H. Purcell & G. B. Woodruff: Bay Bridge raid transit system *770
Bay bridge traffic and approach problems *331
Sodium vapor lighting on the San Francisco Bay Bridge.....*467
Archibald, Raymond & C. B. McCullough: Bridging the Rio Cholutecа with a two span suspension structure.....*87
Self anchored eyebar cable bridge.....*912
Armstrong, D. B.: Welded design for six-span continuous girder bridge.....*52
Ayres, Quincy C.: Soil erosion.....l 65

Bachman, Frank: Seeing German sewage plants .....l 601
Balty, H. G.: Sanitation in the South....l 934
Balog, Louis: Riveted indeterminate bridges safer .....l 858
Barnes, H. D.: Absorptive soils cause heaving on Kansas roads *405
Barnes, H. D. & Harold Allen: Verification sought from test road in Kansas.....*408
Bauer, Edward E.: Hydrometer computations in soil studies simplified.....*662
Joint meetings on soil mechanics.....l 65
Bauknight, Wilfred: New crest gate for dams *665
Baumann, Paul: Wear on sheepsfoot rollers decreased by revised design..... 707
Bedard, Albert J.: One hundred million to pay for obsolescence..... 304
Bereuter, J. W.: Drilled, reamed holes for bridge foundation piles.....*217
Bird, Frederick L.: Focusing on finance..*620
Bleck, A. T.: Changes concreteing practice speeds road widening.....*367
Bloch, O. M.: Welded road bridge girders built on 70-ft. span.....*741
Bolin, Harry W.: Earthquake resistant design for new school buildings.....*415
Bothe, Hugo E.: Concrete rigid frame span of 146 ft. features park bridge at Kenosha *127
Brennan, John G.: Crossing elimination..*200
Brown, John G.: Fabric-lined concrete forms .....l 923
Brown, R. D.: Pavement design has evolved from practice.....*12
Brown, Walter E.: Shortage of engineers .....l 274
Buck, George W: Thin concrete bridge floor wears but little in 10 years.....*710
Burdick, Charles B.: Selecting pumping equipment *805
Burmister, Donald: Squeeze test for integrity of soil samples.....*588
Busch, Henry Paul: Flood-plan trespassers n490
Byers, J. E.: Repairing earthquake damage *362

Campbell, E. F.: Day-labor street paving..*437
Pavement design and construction in Minneapolis *471
Casagrande, A.: Measures of soil behavior are still imperfect..... *8
Soil mechanics progress..... 179
Chawner, Lowell J.: Basic factors in the trend of construction.....*249
Christian, F. G.: Exaggerated flood predictions .....l 344
Clark, R. R.: Portland-pu-zolan cement in Bonneville spillway dam.....*219
Cleary, E. J.: Sanitation stirs the South.*872
Cnare, Frank: Better crown formula for roads l*922
Collier, E. A.: Difficult rock blasting job widens road at Oregon City.....*301
Commons, G. G. & J. W. Pirtchett: Flood formulas .....l 275
Conner, C. N.: Design trends to correlation with traffic needs..... *21
Corder, Leon: Construction costs of cotton-reinforced asphalt *128
Crandell, J. S.: New sense of design values is needed.....*14
Cushing, G. B.: Wrought iron adopted in greenhouse .....l 490

Davis, Arnold: Roadside erosion control studied by soil conservation service..*554
Dean, Arthur W.: Bypass roads and city access 946
DeBardeleben, J. M.: Curves inventoried in route *914
DeBerard, W. W.: Conditions in flood-beleaguered Cairo *153
Hopeful conditions at Cairo.....n143
Doggett, Denzil: Practical soil mechanics for small dams.....*409
Dolan, Thomas J.: Localized stress in brittle material .....l 714
Douglas, Malcolm S. & G. B. Sowers: New streets for old.....*625
Dunford, J. A.: Record rigid-frame bridge *939
Dunham, John W.: Great engineers and publicity .....l 714
Durkee, E. L. & R. L. McIntosh: Steel h-piles lagged with bolts or welding .....l 923

Ehrenburg, D. O.: Measuring soil moisture *708
Ekstrom, Dean B.: Farm-to-market roads extended by Wisconsin *525
Ellsberg, Edward & Charles Kandel: New sheetpile cutting record set for underwater work *373
Esty, Roger W.: Practical maintenance aids *824

Fahnestock, T. V.: Firming fine soil with tar *915
Farquharson, F. B.: Determining beam deflections l*753
Federlein, Walter G.: Need for a public works program .....l 753
Fischer, A. W.: Determining beam deflections .....l 274
Fleming, Robins: Frame analysis.....l 858
Purlins and girts in mill buildings considered as catenaries..... 470
Foster, Edgar E.: Data required for flood prediction .....l 103
Frasch, B. H.: Keeping snow off the road at little cost.....*90

Galbraith, C. C.: Kaplan turbines for Bonneville *765
Gallagher, Clem A.: Meter maintenance...*816
Garnett, C. E.: Collapse of garage structure laid to freak wind gust.....*215
Gaylord, J. M.: Developing high efficiencies in large single-stage pumps.....*45
Gayton, Loran D.: City engineer today...*638
Gedo, J. D.: Beam deflections.....l 529
Glover, V. L.: All charges denied .....l 677
Goldsmith, Clarence & George Tatnall: Distribution system design.....*811
Goodrich, E. P.: Organization and personnel *640
Gordon, Grant: Arch dam of ice stops slide *211
Gould, V. G.: Stabilized road base design 121
Greeley, Samuel A.: Water supply and sanitation *631
Gregg, Willis R.: Forecasting floodflows..*198
Grimm, C. I.: Partial flood-control storage valuable in extreme high water.....*779
Gross, D. D.: Control with valves.....*813
Grover, La Motte: Wellpoints on small bridge work *877

Ham, Clifford W.: Back from the depression 615
Hammill, Harold B.: Flat slabs on 25-ft. spans in earthquake-resistant school..*918
Hansen, Paul: Better water treatment..*801
Hanson, A. C.: Concrete X-ray room....l 491
Hardesty, Shortridge: Bridge engineering 177
Harris, F. R.: Causes of land subsidence l 858
Hawley, J. H.: Elevations on bench marks .....l 274
Level lines at Lake Mead .....l 858
Hay, William Wren: Forecasting trends by grahic analysis *785
Hinckley, W. O.: Truss failure results from using gusset plate as chord splice *787

* Illustrated; a, abstracts; e, editorials; l, letter; n, news